AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Original) An electrochemical sensor strip, comprising:

a base;

a first electrode on the base;

a first reagent layer on the first electrode, the first reagent layer comprising an electroactive organic molecule and an oxidoreductase capable of facilitating a redox reaction of a substrate;

a second electrode on the base; and

a second reagent layer on the second electrode, the second reagent layer comprising a first soluble redox species selected from the group consisting of an organotransition metal complex, a transition metal coordination complex and mixtures thereof, the first soluble redox species being capable of undergoing a redox reaction opposite that of the substrate.

2. (Original) The electrochemical sensor strip of claim 1, wherein the composition of the first reagent layer is different from the composition of the second reagent layer.

3. (Cancelled) The electrochemical sensor strip of claim 2, wherein the oxidoreductase is substantially present only in the first reagent layer.

4. (Cancelled) The electrochemical sensor strip of claim 2, wherein the electroactive organic molecule is substantially present only in the first reagent layer.

5. (Cancelled) The electrochemical sensor strip of claim 2, wherein the first soluble redox species is substantially present only in the second reagent layer.

6. (Original) The electrochemical sensor strip of claim 2, wherein the second reagent layer further comprises a second redox species, the second redox species being a species of a redox pair comprising the first soluble redox species and the second redox species, and

wherein the molar ratio of the first soluble redox species to the second redox species is greater than 1.2:1.

7. (Original) The electrochemical sensor strip of claim 6, wherein the molar ratio of the first soluble redox species to the second redox species is greater than 2:1.

8. (Cancelled) The electrochemical sensor strip of claim 7, wherein the molar ratio of the first soluble redox species to the second redox species is greater than about 10:1.

9. (Cancelled) The electrochemical sensor strip of claim 6, wherein the second redox species is present in an amount less than 1 part per thousand.

10. (Cancelled) The electrochemical sensor strip of claim 6, wherein the first soluble redox species has a standard reduction potential of at least +0.24 volts.

11. (Cancelled) The electrochemical sensor strip of claim 10, wherein the first soluble redox species has a standard reduction potential of at least +0.35 volts.

12. (Cancelled) The electrochemical sensor strip of claim 6, wherein the first reagent layer further comprises the second redox species.

13. (Original) The electrochemical sensor strip of claim 1, wherein the first soluble redox species comprises ferrocyanide or ferricyanide.

14. (Original) The electrochemical sensor strip of claim 1, wherein the first soluble redox species comprises ruthenium(II) hexaamine or ruthenium(lll) hexaamine.

15. (Original) The electrochemical sensor strip of claim 1, wherein the electroactive organic molecule is selected from the group consisting of coenzyme pyrroloquinoline quinone (PQQ), substituted benzoquinones, substituted naphthoquinones, N-oxides, nitroso compounds, hydroxylamines, oxines, flavins, phenazines, phenothiazines, indophenols, indamines, phenazinium salts, phenoxazinium salts, 3-phenylimino-3H-phenothiazines, 3-phenylimino-3H-phenoxazines, and mixtures thereof.

16. (Original) The electrochemical sensor strip of claim 1, wherein the electroactive organic molecule comprises a 3-phenylimino-3H-phenothiazine.

17. (Original) The electrochemical sensor strip of claim 1, wherein the electroactive organic molecule comprises a 3-phenylimino-3H-phenoxazine.

18. (Cancelled) The electrochemical sensor strip of claim 1, wherein the oxidoreductase is selected from the group consisting of glucose dehydrogenase, glucose oxidase, cholesterol esterase, cholesterol oxidase, lipoprotein lipase, glycerol kinase, glycerol-3-phosphate oxidase, lactate oxidase, lactate dehydrogenase, diaphorase, pyruvate oxidase, alcohol oxidase, bilirubin oxidase, uricase, glutathione reductase, and carbon monoxide oxidoreductase.

19. (Cancelled) The electrochemical sensor strip of claim 1, wherein the oxidoreductase comprises an enzyme selected from the group consisting of an oxidase and a dehydrogenase, and wherein the first soluble redox species is a reducible species.

20. (Cancelled) The electrochemical sensor strip of claim 19, wherein the oxidoreductase comprises glucose oxidase or glucose dehydrogenase.

21. (Cancelled) The electrochemical sensor strip of claim 1, wherein the oxidoreductase comprises a reductase, and wherein the first soluble redox species is an oxidizable species.

22. (Original) The electrochemical sensor strip of claim 1, further comprising a lid.

23. (Cancelled) The electrochemical sensor strip of claim 1, wherein the second electrode comprises a surface layer comprising a non-ionizing conducting material.

24. (Cancelled) The electrochemical sensor strip of claim 23, wherein the surface layer comprises carbon.

25. (Cancelled) The electrochemical sensor strip of claim 1, wherein the second electrode comprises a non-ionizing conducting material.

26. (Original) The electrochemical sensor strip of claim 1, further comprising a third electrode on the base and a third reagent layer on the third electrode, the third reagent layer comprising a third soluble redox species.

27. (Cancelled) The electrochemical sensor strip of claim 26, wherein the third soluble redox species is substantially identical to the first soluble redox species.

28. (Cancelled) The electrochemical sensor strip of claim 2, further comprising a third electrode on the base and a third reagent layer on the third electrode, the third reagent layer comprising a third soluble redox species.

29. (Cancelled) The electrochemical sensor strip of claim 28, wherein the third soluble redox species is substantially identical to the first soluble redox species.

30. (Original) An electrochemical sensor strip, comprising:

a base;

a first electrode on the base;

a first reagent layer on the first electrode, the first reagent layer comprising an electroactive organic molecule and an enzyme selected from the group consisting of glucose oxidase, glucose dehydrogenase, and mixtures thereof;

a second electrode on the base; and

a second reagent layer on the second electrode, the second reagent layer comprising a first soluble redox species selected from the group consisting of an organotransition metal complex, a transition metal coordination complex, and mixtures thereof, the first soluble redox species being a reducible species.

31. (Original) The electrochemical sensor strip of claim 30, wherein the composition of the first reagent layer is different from the composition of the second reagent layer.

32. (Cancelled) The electrochemical sensor strip of claim 31, wherein the electroactive organic molecule and the enzyme are substantially present only in the first reagent layer, and the first soluble redox species is substantially present only in the second reagent layer.

33. (Original) The electrochemical sensor strip of claim 30, wherein the electroactive organic molecule is selected from the group consisting of 3-phenylimino-3H-phenothiazines, 3-phenylimino-3H-phenoxazines, and mixtures thereof.

34. (Cancelled) The electrochemical sensor strip of claim 30, wherein the first soluble redox species is selected from the group consisting of ferricyanide and ruthenium(III) hexaamine.

35. (Cancelled) The electrochemical sensor strip of claim 30, further comprising a third electrode on the base, and a third reagent layer on the third electrode, the third reagent layer comprising a third soluble redox species.

36. (Cancelled) The electrochemical sensor strip of claim 30, wherein the third soluble redox species is substantially identical to the first soluble redox species.

37. (Original) A method of making an electrochemical sensor strip, the method comprising the acts of:

depositing a first electrode on a base;

depositing a second electrode on the base;

applying a first reagent layer on the first electrode, the first reagent layer comprising an electroactive organic molecule and an oxidoreductase capable of facilitating a redox reaction of a substrate; and

applying a second reagent layer on the second electrode, the second reagent layer comprising a first soluble redox species selected from the group consisting of an organotransition metal complex, a transition metal coordination complex, and mixtures thereof, the first soluble redox species being capable of undergoing a redox reaction opposite that of the substrate.

38. (Original) The method of claim 37, wherein the oxidoreductase comprises an enzyme selected from the group consisting of an oxidase and a dehydrogenase, and wherein the soluble redox species is a reducible species.

39. (Cancelled) The method of claim 38, wherein the oxidoreductase comprises glucose oxidase or glucose dehydrogenase.

40. (Cancelled) The method of claim 37, wherein the oxidoreductase comprises a reductase, and wherein the soluble redox species is an oxidizable species.

41. (Cancelled) The method of claim 37, wherein the depositing the first electrode comprises screen printing a pattern of conductive carbon.

42. (Cancelled) The method of claim 41, wherein the depositing the second electrode comprises screen printing a pattern of conductive carbon.

43. (Cancelled) The method of claim 37, wherein the depositing the second electrode comprises depositing a pattern of a non-ionizing conductive material.

44. (Cancelled) The method of claim 37, further comprising covering a portion of the base with a dielectric layer such that the first and second reagent layers are exposed.

45. (Original) The method of claim 37, further comprising mating a lid to the base such that the lid is over the first and second electrodes and the first and second reagent layers.

46. (Cancelled) The method of claim 37, wherein the composition of the first reagent layer is different from the composition of the second reagent layer.

47. (Cancelled) The method of claim 46, wherein the electroactive organic molecule and the oxidoreductase are substantially present only in the first reagent layer, and the first soluble redox species is substantially present only in the second reagent layer.

48. (Cancelled) The method of claim 46, wherein the second reagent layer further comprises a second redox species, the second redox species being a species of a redox pair comprising the first soluble redox species and the second redox species, and wherein the molar ratio of the first soluble redox species to the second redox species is greater than 10:1.

49. (Cancelled) The method of claim 48, wherein the second redox species is present in the second reagent layer in an amount less than 1 part per thousand.

50. (Cancelled) The method of claim 48, wherein the first soluble redox species has a standard reduction potential of at least +0.24 volts.

51. (Cancelled) The method of claim 50, wherein the first soluble redox species has a standard reduction potential of at least +0.35 volts.

52. (Cancelled) The method of claim 46, wherein the applying the first reagent layer comprises dispensing a first aqueous composition comprising the oxidoreductase and the electroactive organic molecule.

53. (Cancelled) The method of claim 52, wherein the first aqueous composition further comprises a redox cofactor for the oxidoreductase.

54. (Cancelled) The method of claim 52, wherein the first aqueous composition further comprises a binder.

55. (Cancelled) The method of claim 52, wherein the first aqueous composition further comprises a buffer.

56. (Cancelled) The method of claim 46, wherein the applying the second reagent layer comprises dispensing a second aqueous composition comprising the first soluble redox species.

57. (Cancelled) The method of claim 56, wherein the second aqueous composition further comprises a buffer.

58. (Cancelled) The method of claim 37, further comprising depositing a third electrode on the base, and applying a third reagent layer on the third electrode, the third reagent layer comprising a third soluble redox species.

59. (Cancelled) The method of claim 58, wherein the third soluble redox species is substantially identical to the first soluble redox species.

60. (Cancelled) The method of claim 59, wherein the composition of the third reagent layer is substantially identical to the composition of the second reagent layer.

61. (Original) A method of quantifying an analyte in a sample, the method comprising the acts of:

contacting the sample with an electrochemical sensor strip, the electrochemical sensor strip comprising a first electrode and a first reagent layer on the first electrode, the first reagent layer comprising an electroactive organic molecule and an oxidoreductase capable of facilitating a redox reaction of a substrate, the electrochemical sensor strip further comprising a second electrode and a second reagent layer on the second electrode, the second reagent layer comprising a soluble redox species selected from the group consisting of an organotransition metal complex, a transition metal coordination complex, and mixtures thereof, the soluble redox species being capable of undergoing a redox reaction opposite that of the substrate;

applying an electrical potential between the first and second electrodes;

measuring a current passing through the first and second electrodes and the sample; and

correlating the current to a concentration of the analyte.

62. (Cancelled) The method of claim 61, wherein the soluble redox species solubilizes in the sample and mixes with the electroactive organic molecule and an oxidoreductase.

63. (Cancelled) The method of claim 61, wherein the analyte is the substrate for the oxidoreductase.

64. (Cancelled) The method of claim 61, wherein the analyte is a cofactor for the oxidoreductase.

65. (Original) The method of claim 61, wherein the oxidoreductase comprises an enzyme selected from the group consisting of an oxidase and a dehydrogenase, the soluble redox species being a reducible species.

66. (Cancelled) The method of claim 65, wherein the soluble redox species is selected from the group consisting of ferricyanide and ruthenium(III) hexaamine.

67. (Cancelled) The method of claim 61, wherein the oxidoreductase comprises a reductase, and wherein the soluble redox species is an oxidizable species.

68. (Original) The method of claim 61, wherein the analyte comprises glucose, and the oxidoreductase comprises glucose oxidase or glucose dehydrogenase.

69. (Cancelled) The method of claim 61, wherein the electroactive organic molecule is selected from the group consisting of 3-phenylimino-3H-phenothiazines, 3-phenylimino-3H- phenoxazines, and mixtures thereof.

70. (Cancelled) The method of claim 61, wherein the electrochemical sensor strip further comprises a third electrode comprising the soluble redox species.

71. (Cancelled) The method of claim 70, wherein the third electrode measures a second electrical potential between the third electrode and the first electrode, and the measured second electrical potential is used to adjust the electrical potential between the first and second electrodes.

72. (Cancelled) The method of claim 61, wherein the composition of the first reagent layer is different from the composition of the second reagent layer.

73. (Cancelled) The method of claim 72, wherein the electroactive organic molecule and the oxidoreductase are substantially present only in the first reagent layer, and the soluble redox species is substantially present only in the second reagent layer.